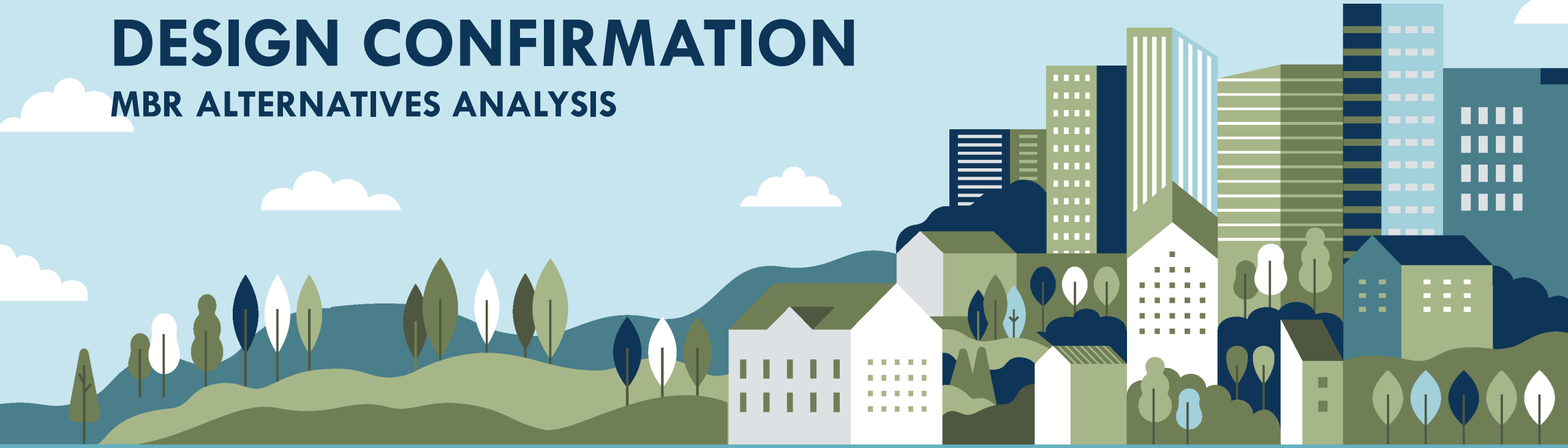
HERITAGE RANCH COMMUNITY SERVICES DISTRICT

DESIGN CONFIRMATION

MBR ALTERNATIVES ANALYSIS



WSC

AUGUST 18, 2022

Agenda

1. Scope of Task
2. Definition of Alternatives
3. Non-Economic Comparison
4. Cost Basis
5. Cost Comparison

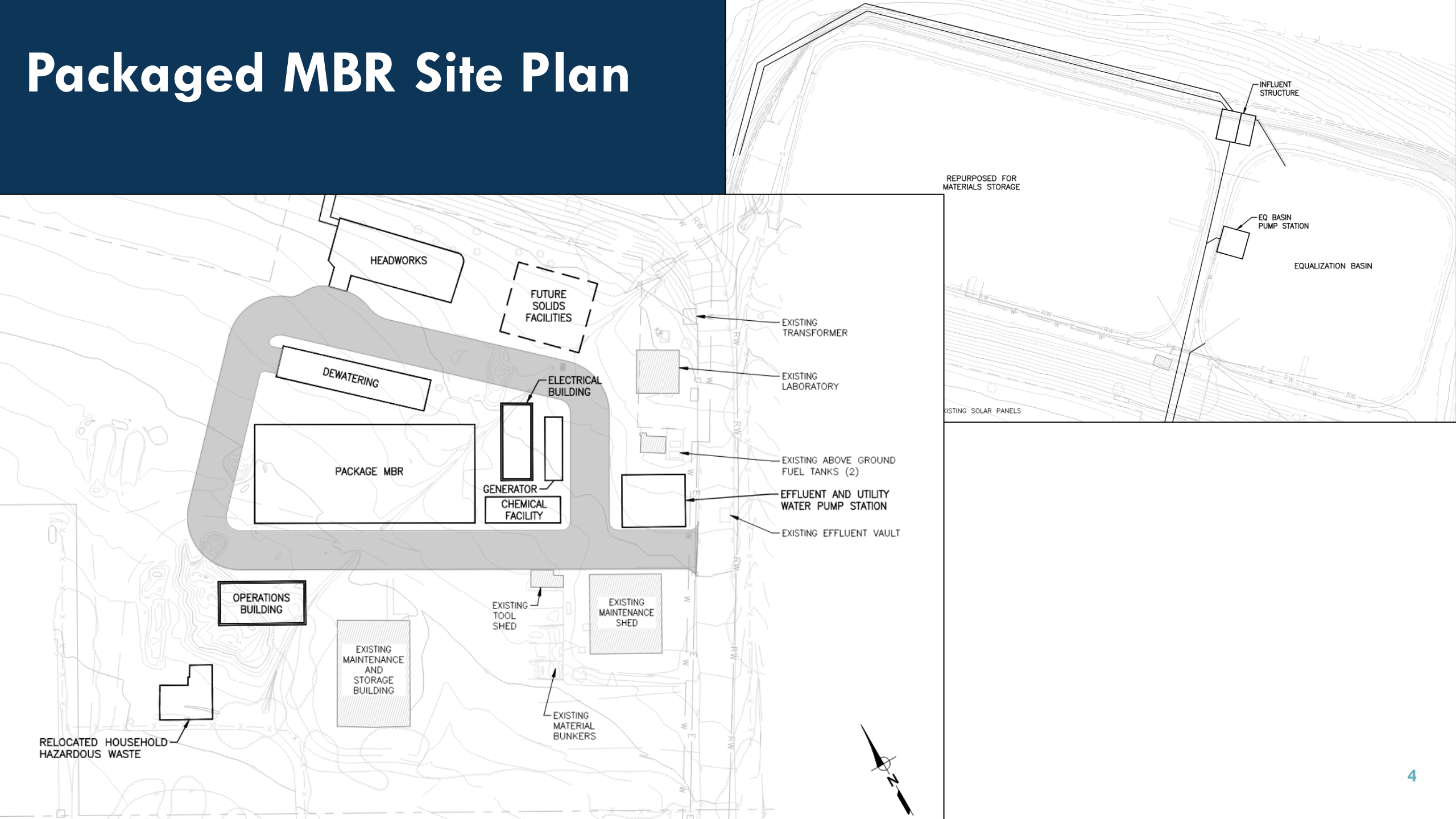
Design Confirmation Task

- Packaged MBR versus Site Built MBR
- Non-economic Evaluation
- Economic Evaluation
- Determine Preferred Alternative

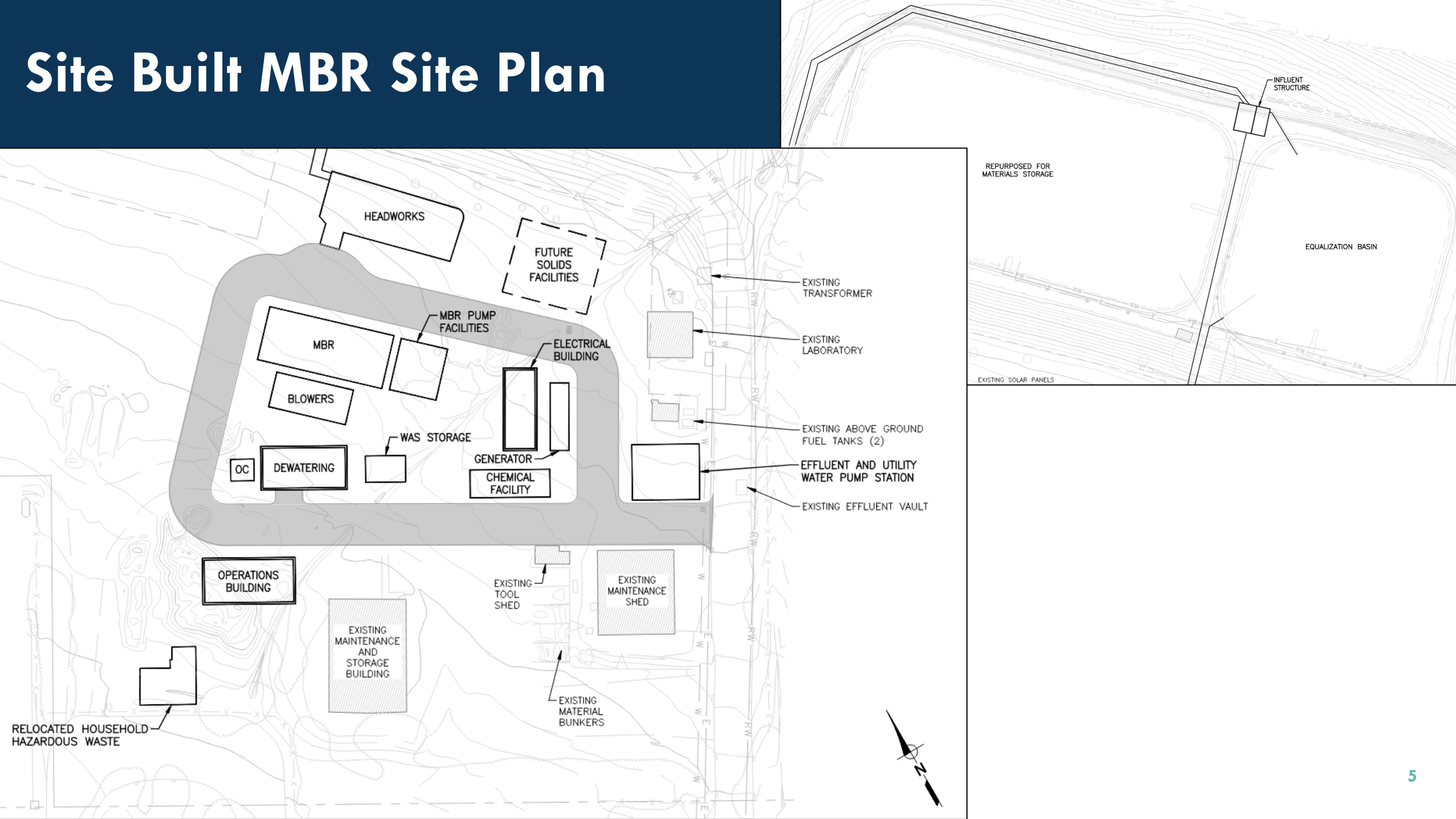
Today's Discussion

- Review Procurement Approach for Preferred Alternative
- Design Confirmation TM

Packaged MBR Site Plan



Site Built MBR Site Plan



Definition of Alternatives

Project Element	Packaged MBR	Site Built MBR
Headworks - Coarse Screens	✓	✓
Headworks - Fine Screens	Packaged with MBR	Constructed
Headworks - Grit Removal	Packaged with MBR	Constructed
Influent Structure	✓	✓
Equalization Basin Improvements	✓	✓
Equalization Basin Pump Station	✓	
MBR**	Cloacina Packaged Unit	Constructed
Dewatering System	Packaged with MBR	Constructed
Dewatering Building & Odor Control		✓
Chemical Facility	✓	✓
Effluent & Utility Water Pump Station	✓	✓
Operations Building	✓	✓

Non-Economic Comparison

Packaged, Site Built, or Similar

Non-Economic Criteria	Advantage
Technical Performance Ability to Install Dewatering Odor Control Ability to Meet Permit Limits Adaptability to Varying Influent	
O&M Process Control Adjustments Level of Complexity Maintenance Intensity	
Long-Term Resiliency Ease of Capacity Expansion Level of Risk from Process Failures Ease of Incorporating Process Changes	
Implementation Constructability Permitting Construction Schedule Savings	

Cost Basis

- July 2022 Dollars
- AACE Class 4 Estimate
  - 1-15% Project Definition
  - Study or Feasibility Level
  - -15% to +20% Accuracy
- Cost Sources
  - Current Vendor Quotes
  - Recent Project Bids
  - Parametric Estimating and Escalation from Similar Projects (completed in last 5 years)
  - Engineering Judgment
  - Unit Costs from Similar Cost Opinions

Costs not in Cost Estimate

- Design costs
  - Scope assumes packaged MBR design
- Escalation to midpoint of construction
- Value engineering opportunities for design

Alternative Cost Comparison

ID	Cost Item	Site Built MBR	Packaged MBR	Equal To
A	Influent Structure	$ 119,600	$ 569,600	
A	Headworks	$ 1,742,000	$ 755,000	
A	MBR	$ 3,947,000	$ 5,615,000	
A	Dewatering	$ 1,429,000	$ 888,000	
A	WAS Storage	$ 194,000	$ -	
A	Chemical Facility	$ 504,000	$ 504,000	
A	Electrical Building	$ 1,040,000	$ 1,040,000	
A	Generator	$ 558,000	$ 558,000	
A	Effluent and UW Pump Station	$ 464,000	$ 464,000	
A	Operations Building	$ 1,265,500	$ 1,265,500	
A	Site Civil and Grading	$ 359,000	$ 397,300	
A	Equalization Basin Improvements	$ 856,500	$ 856,500	
A	Demolition	$ 65,000	$ 65,000	
B	**Subtotal**	**$ 12,545,000**	**$ 12,979,000**	**Sum of A**

Cost Basis

ID	Cost Item	Equal To
A	Process Elements	
B	**Subtotal**	**A**
C	Unaccounted for Costs	B x 5%
D	Contractor OH&P	B x 15%
E	General Conditions	B x 3%
F	**Construction Cost Subtotal**	**B + C + D + E**
G	Implementation (Admin, ESDC, CM)	F x 15%
H	Construction Contingency	F x 15%
I	**Total Capital Cost**	**F + G + H**

Alternative Cost Comparison

ID	Cost Item	Site Built MBR	Packaged MBR	Equal To
B	**Subtotal**	**$ 12,545,000**	**$ 12,979,000**	**Sum of A**
C	Unaccounted for Costs	$ 628,000	$ 649,000	B x 5%
D	Contractor OH&P	$ 1,882,000	$ 1,947,000	B x 15%
E	General Conditions	$ 377,000	$ 390,000	B x 3%
F	**Construction Cost Subtotal**	**$ 15,432,000**	**$ 15,965,000**	**B + C + D + E**
G	ESDC and CM	$ 2,315,000	$ 2,395,000	F x 15%
H	Construction Contingency	$ 2,315,000	$ 2,395,000	F x 15%
I	**Total Capital Cost**	**$ 20,062,000**	**$ 20,755,000**	**F + G + H**

Discussion and Questions